

Patent claims

1. A process of the multistage conversion of heat energy into mechanical energy by means of changing volume, pressure and temperature of the work medium, primarily gas,

c h a r a c t e r i s e d b y t h a t

the work medium is sucked into the first stage, concurrently with enlarging of the volume of the first stage, whereon the work medium is transferred, concurrently with the decreasing of the volume of the first stage into the second stage with enlarging of the volume of the second stage whereon the work medium is further transferred, concurrently with the second stage volume decreasing and with the concurrent heat supply, through the third stage into the fourth stage with this stage volume increasing, whereon the work medium is furthermore transferred, concurrently from the fourth stage into the fifth stage with decreasing of the volume of the fourth stage and it is finally allowed to expand in the fifth stage, concurrently with its volume increasing.

2. A process according to the claims 1,

c h a r a c t e r i s e d b y t h a t

the work medium is transferred through the third stage directly into the fifth stage concurrently with the second stage volume decreasing and with concurrent warming.

3. A process according to the claim 1 or 2,
c h a r a c t e r i s e d b y
cooling of the work medium during the transfer from the first
stage into the second stage.

4. A process according to the one of the claims 1 to 3,
c h a r a c t e r i s e d b y
transferring the work medium from the fifth stage into the
first stage concurrently with cooling, with the volume
decreasing of the fifth stage and with the volume increasing
of the first stage.

5. A process according to one of the claims 1 to 3,
c h a r a c t e r i s e d b y t h a t
the work medium is transferred from the fifth stage into the
third stage concurrently with the volume decreasing of the
fifth stage and used for a warming process.

6. A process according to the claim 1,
c h a r a c t e r i s e d b y t h a t
the work medium is transferred from the fifth stage directly
to the second stage concurrently with the volume decreasing of
the fifth stage and/or cooling and second stage volume
increasing.

7. An apparatus for the multistage conversion of heat energy into mechanical energy by means of changing volume, pressure and temperature of the work medium according to one of the claims 1 to 6,

c h a r a c t e r i s e d b y t h a t

the third stage (3) is created as, at least, one working space with an invariable volume, while the other stages (1, 2, 4, 5) are created as workspaces with variable volumes, namely as piston machines with the revolving piston, and are functionally (in sense of the work medium transfer) arranged one behind the other partly before the third stage (3) and partly behind this stage.

8. An apparatus according to the claim 7,

c h a r a c t e r i s e d b y t h a t

the largest volume of the first stage (1) is larger than the largest volume of the second stage (2), whereto the largest volume of the fifth stage (5) is larger than the largest volume of the fourth stage (4), and whereto the largest volume of the fifth stage (5) is larger or equal to the largest volume of the first stage (1).

9. An apparatus according to the claim 7 or 8,

c h a r a c t e r i s e d b y t h a t

the fifth stage (5) is joined with the first stage (1).

10. An apparatus according to one of the claims 7 to 9,
c h a r a c t e r i s e d b y t h a t
the third stage (3) is created as a combustion chamber and/or
as a heat exchanger.

11. An apparatus according to one of the claims 7 to 10,
c h a r a c t e r i s e d b y t h a t
the fifth stage (5) is provided with an inlet valve (8).

12. An apparatus according to one of the claims 7 to 11,
c h a r a c t e r i s e d b y t h a t
the interstage cooler (6,7) is placed between the first stage
(1) and the second stage (2) and between the fifth stage (5)
and the first stage (1) as well and the cooler (76) is placed
between joined stage (51) and the second stage (2).